Waterborne Transportation and the U.S. Economy

USACE

From 1993 to 1997, U.S.-foreign waterborne trade grew by 4.6 percent per year while domestic waterborne trade increased by only 1 percent per year. The recovery of U.S. grain exports from the 1993 Midwest floods had a substantial impact on the industry, increasing both dry-bulk exports and long-haul domestic barge shipments on the inland waterways (McGraw-Hill 1999).

REAL GROSS DOMESTIC PRODUCT AND EMPLOYMENT

In the 1990s, growth of real gross domestic product (GDP) from for-hire water transportation has been below the growth rate for other for-hire transportation services. Water carriers are heavily involved in primary products trades (e.g., grains, crude oil, coal, and ores), which have grown at lower rates than manufactured trades. As shown in table 3-1, the average annual growth rate for water transportation was about 1.3 percent between 1992 and 1997. By comparison, real GDP from nonwater transportation grew, on average, by about 4.8 percent per year during this period (USDOC BEA 1999).

Over this period, water transportation accounted for only about 5 percent of total real GDP from all for-hire transportation services. This low percentage can be attributed to two factors:

Table 3-1
Real Gross Domestic Product by For-Hire Transportation Mode (Chained 1992 $ billions)

Mode	1992	1993	1994	1995	1996	1997	Annual growth rate, 1992-97 (percent)
Rail	22.1	23.0	25.6	26.1	28.2	28.2	5.0
Trucking and warehousing	82.2	86.2	88.7	89.1	86.5	87.3	1.2
Water	10.3	10.5	10.8	11.0	10.7	11.0	1.3
Air	43	44.2	51.4	50.6	63.5	72.6	11.0
Pipelines*	4.9	5.2	4.8	4.9	6.3	6.8	6.8
Local and interurban passenger transit	10.9	11.0	11.0	11.4	11.3	11.3	0.7
Total	**192.8**	**201.1**	**214.3**	**216.1**	**222.9**	**241.5**	**4.5**
(Water)	10.3	10.5	10.8	11.0	10.7	11.0	1.3
(Nonwater)	182.5	190.6	203.5	205.1	212.2	230.5	4.8

* Except natural gas.
SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, National Accounts Data–Gross Product by Industry. Available as of Mar. 26, 1999 at http://www.bea.doc.gov/bea/dn2/gpox.html.

- The United States has had a persistent U.S. balance of payments deficit in water transportation. In 1997, foreign carriers received $11.9 billion for transporting foreign goods to U.S. ports, but paid out $7.6 billion for U.S. port and handling services, resulting in a balance-of-payments outflow of $4.3 billion for the United States. That same year, U.S. carriers received $4.6 billion transporting U.S. exports to foreign ports while paying $2.2 billion in foreign port and cargo-handling services—a balance-of-payments inflow of $2.4 billion. With receipts from and payments for passenger fares, this outflow-inflow imbalance resulted in a $2.0 billion deficit for the United States (see table 3-2).[1]

- Freight rates per ton-mile for waterborne shipments tend to be substantially lower than rates for overland shipments. The Bureau of Transportation Statistics estimates that the freight rate per ton-mile for rail transportation is about four times that for water transportation (USDOT BTS 1998a). As noted earlier, this reflects heavy involvement of water carriers in primary product trades, which tend to have lower freight rates per ton-mile than manufactured and semimanufactured trades.

Real GDP from water transportation is expected to increase at an average rate of about 2 percent per year from 1998 to 2003 (McGraw-Hill 1999). This is less than the projected growth in international waterborne trades (4.6 percent per year), but above the projected growth for domestic trades (1 percent per year). The primary

[1] The Jones Act (Section 27 of the Merchant Marine Act of 1920) prohibits foreign-owned or foreign-flagged vessels from participating in U.S. domestic trade. Thus, U.S.–based companies receive all payments for domestic water transportation, including payments for port and cargo handling services.

Table 3-2
Water Transportation: U.S. Balance of Payments, 1995-1997
($ million)

	1995	1996	1997
Receipts			
Passenger fares	285	329	329
Export freight*	5,278	4,703	4,577
Port expenditures	8,298	7,799	7,626
Total	**13,861**	**12,831**	**12,532**
Payments			
Passenger fares	353	453	453
Import freight*	11,514	11,258	11,896
Port expenditures	2,555	2,231	2,186
Total	**14,422**	**13,942**	**14,535**
Balance	**-561**	**-1,111**	**-2,003**

*Includes charter hires.
SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (Washington, DC: U.S. Government Printing Office, October, 1998).

drag on the industry is expected to be the decline in Alaska crude oil production (-4.1 percent per year), which will reduce domestic ocean crude-oil movements (USDOE EIA 1998).

In 1997, employment in the for-hire water transportation industry was 187,000. Its share of total for-hire transportation employment was about 4 percent. (USDOT BTS forthcoming). Employment varies by season, with spring and summer employment about 6 percent higher than during the rest of the year. The seasonal employment pattern reflects a combination of patterns in Great Lakes bulk trades (coal, iron ore, and limestone), inland barge trades (grains), and coastwise petroleum product trades.

Employment in water transportation is expected to increase at a rate of about 1 percent per year from 1998 to 2003. Historically, water transportation employment growth has not kept pace with real GDP growth—a sign that labor productivity is going up—and this relationship is expected to continue.

CAPITAL STOCK

The growth in capital stock for water transportation (ships and boats) has not kept pace with that of other transportation modes in the 1990s due to the following factors (see table 3-3).

- A surge in vessel newbuilding (fleet capacities) in the late 1970s and early 1980s depressed freight rates in the 1980s and 1990s, which in turn limited financial

Table 3-3
Net Stock of Fixed Private Capital, Transportation Equipment ($ billions)

	1993	1994	1995	1996	1997
Trucks, buses & trailers	185	210	236	261	282
Ships & boats	46	45	45	45	46
Railroad equipment	69	73	79	79	79
Aircraft	127	129	136	140	146
Total	**427**	**457**	**496**	**525**	**553**

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (Washington, DC: U.S. Government Printing Office, November, 1998).

resources for new vessel construction and dampened expected returns on new vessel investment. (See figures 1-1 and 1-7 in chapter 1.) Actual freight rates in the early 1990s have generally been below newbuilding breakeven rates.

- Large, unexpected year-to-year fluctuations in waterborne freight rates (market risks) in primary product trades generate uncertainty about expected returns on vessel investment. For example, inland dry-cargo (grains) barge freight rates on the lower Mississippi River increased by 61 percent from 1994 to 1995, but fell by 48 percent from 1995 to 1996 (St. Louis Merchants Exchange 1994-1996 issues). Although the drop in freight rates occurred in a specific area, it had a broad impact on the waterborne freight market.

FOR-HIRE WATER TRANSPORTATION INCOME

As shown in table 3-4, the Southeast accounted for the largest share (34 percent) of total personal income and earnings (income) from the for-hire water transportation industry, which totaled $8.1 billion in 1997. The Far West was the next highest income-producing region, with 29 percent, followed by the Northeast (21 percent), Southwest (8 percent), and the Great Lakes (6 percent).[2]

The Southeast had the highest growth in water transportation income from 1995 to 1997, reflecting growth in container traffic through southeast ports and a resurgence in demand for offshore supply boat services in the U.S. Gulf (related to offshore oil exploration and development).

On a state basis, in 1997, California had the largest share (17 percent) of water

[2] The **Northeast region** includes Maine, Connecticut, Massachusetts, New Hampshire, Vermont, Rhode Island, New York, New Jersey, Delaware, Washington, DC, Maryland, and Pennsylvania. The **Southeast region** includes Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. The **Far West region** includes Alaska, California, Hawaii, Nevada, Oregon, and Washington. The **Great Lakes region** includes Illinois, Indiana, Michigan, Ohio, and Wisconsin. The **Southwest region** includes Arizona, New Mexico, Oklahoma, and Texas. Other states not included in these regions are Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Colorado, Idaho, Montana, Utah, and Wyoming. Collectively, they account for 2 percent of water transportation income.

transportation income, followed by Louisiana (13 percent), Florida (10 percent), Texas (8 percent), New Jersey (7 percent), Washington (7 percent), and New York (6 percent) (see table 3-5).

Table 3-4
Personal Earnings and Income from Water Transportation by Region, 1995-1997

Region	1995 $ million	1995 Percent	1996 $ million	1996 Percent	1997 $ million	1997 Percent	Annual Compound growth rate, 1995-97
Northeast	1,612	22.5	1,620	21.7	1,699	20.9	2.7
Southeast	2,303	32.1	2,445	32.7	2,749	33.8	9.3
Great Lakes	453	6.3	476	6.4	496	6.1	4.6
Far West	2,080	29.0	2,171	29.0	2,372	29.1	6.8
Southwest	600	8.4	626	8.4	678	8.3	6.3
Other	123	1.7	140	1.9	140	1.7	6.7
Total	**7,171**	**100.0**	**7,478**	**100.0**	**8,144**	**100.0**	**6.6**

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (Washington, D.C: U.S. Government Printing Office, October, 1998).

Table 3-5
Personal Earnings and Income from Water Transportation, Top 10 States, 1995-97

State	1995 $ millions	1995 Percent	1996 $ millions	1996 Percent	1997 $ millions	1997 Percent
California	1,194	16.7	1,270	17.0	1,405	17.3
Louisianna	857	12.0	897	12.0	1,058	13.0
Florida	681	9.5	713	9.5	816	10.0
Texas	589	8.2	614	8.2	665	8.2
New Jersey	563	7.9	541	7.2	569	7.0
Washington	510	7.1	519	6.9	562	6.9
New York	436	6.1	438	5.9	469	5.8
Virginia	197	2.7	215	2.9	217	2.7
Pennsylvania	208	2.9	208	2.8	210	2.6
Hawaii	164	2.3	165	2.2	174	2.1
Total, top 10	**5,399**	**75.3**	**5,580**	**74.6**	**6,145**	**75.5**
Remaining states	1,777	24.7	1,898	25.4	1,999	24.5
Total	**7,171**	**100**	**7,478**	**100**	**8,144**	**100**

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (Washington, DC: U.S. Government Printing Office, October, 1998).

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